# Test Area North Operable Unit 1-07B Final Groundwater Remedial Action Health and Safety Plan

## 1. INTRODUCTION

This health and safety plan (HASP) describes the process that will be used to minimize health and safety risks to persons working on operational and construction activities at Test Area North (TAN) in support of the final groundwater remedial action, operable unit (OU) 1-07B. This HASP has been prepared to meet the requirements of the Occupational Safety and Health Administration (OSHA) standard, 29 Code of Federal Regulations (CFR) 1910.120/1926.65, "Hazardous Waste Operations and Emergency Response (HAZWOPER)." Its preparation is consistent with information found in the National Institute of Occupational Safety and Health (NIOSH)/OSHA/United States Coast Guard (USCG)/U.S. Environmental Protection Agency (EPA) *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities* (NIOSH 1985); Idaho National Engineering and Environmental Laboratory (INEEL) *Safety and Health Manuals;* and INEEL *Radiological Controls Manual* and *Radiation Protection Manual.* This HASP has been prepared to comply with the authorized safety basis detailed in the *Preliminary Hazard Assessment Test Area North Groundwater Treatment Facility Operable Unit 1-07B* (INEEL 1996).

This HASP governs all work performed by employees of Bechtel BWXT Idaho, LLC (BBWI) and project personnel and employees of other companies, or U.S. Department of Energy (DOE) laboratories. This work includes:

- Well drilling activities
- Treatment facility modifications activities
- Treatment facility operations and maintenance to include management and inspection of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) storage areas associated with the TAN facility remedial action
- Geophysical downhole probing of wells
- Groundwater monitoring
- Natural attenuation (NA) field tests
- In situ bioremediation (ISB).

This HASP will be reviewed and revised by the health and safety officer (HSO) in conjunction with the Project Manager (PM) project field construction coordinator (FCC), other health and safety professionals, and the BBWI Environmental Restoration (ER) Waste Area Group (WAG) 1 Safety, Health, and Quality (SH&Q) point of contact (POC) or designee, as necessary, to ensure the effectiveness and suitability of this HASP.

### 1.1 INEEL Site Description

The INEEL, formerly the National Reactor Testing Station (NRTS), encompasses 2,305 km$^2$ (890 mi$^2$) and is located approximately 55 km (34 mi) west of Idaho Falls, Idaho (see Figure 1-1).

The United States Atomic Energy Commission, now the DOE, established the NRTS, now the INEEL, in 1949 as a site for building and testing a variety of nuclear facilities. The INEEL has also been the storage facility for transuranic (TRU) waste and radioactive low-level waste (LLW) since 1952. At present, the INEEL supports the engineering and operations efforts of DOE and other federal agencies in areas of nuclear safety research, reactor development, reactor operations and training, nuclear defense materials production, waste management technology development, and energy technology and conservation programs. The DOE Idaho Operations Office (DOE-ID) has responsibility for the INEEL, and designates authority to operate the INEEL to government contractors. BBWI, the current primary contractor for the DOE-ID at the INEEL, provides managing and operating services to the majority of INEEL facilities.

## 1.2 Project Site Description

TAN is located in the northern portion of the INEEL. It consists of four major facilities that were used to develop a nuclear-powered aircraft and to conduct tests that simulate accidents involving the loss of coolant from nuclear reactors. The key area for this final remedial action (RA) is the Technical Support Facility (TSF) area, which is centrally located at TAN (Figure 1-2). The focus of this Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remediation activity is operable unit (OU) 1-07B TAN final groundwater remediation, which includes remediation of the TAN TSF-05 injection well and the surrounding groundwater contamination areas (TSF-23). Industrial activities at the TSF generated wastewater that was introduced into the groundwater via the TSF-05 injection well.

The TSF-05 injection well, shown in Figure 1-2, was completed in 1953 to a depth of 93 m (305 ft). The well has a 30-cm (12-in.) diameter casing and is screened from 55 to 74 m (180 to 244 ft) and from 82 to 93 m (269 to 305 ft) below ground surface (bgs). The injection well, used from 1955 to 1972 to dispose of TSF-generated industrial and sanitary wastewater, is above the Snake River Plain Aquifer (SRPA). The well was also used in the late 1950s and early 1960s to dispose of concentrated evaporator sludge from the processing of low-level radioactive and process wastes.

Sampling of the drinking water and other TAN area wells from 1987 to 1990 confirmed the presence of trichloroethene (TCE) in the aquifer and also identified tetrachloroethene (PCE) as a contaminant that exceeded the drinking water standards. Table 1-1 presents ranges of contaminant concentrations in the groundwater. The TSF-05 injection well was identified as the source of the contamination.

Additional sampling of the TSF-05 in August 1992 indicated the presence of 1,2 dichloroethene (DCE) as well as the other contaminants. The presence of the TCE and PCE was further confirmed by the sampling results of the TSF-05, TAN-25, and TAN-26 wells in June 1993.

Contamination has been found from the top of the water table at 61 m (200 ft) to at least 122 m (400 ft) bgs. The highest groundwater contamination levels are found near TSF-05, TAN-25, and TAN-26 wells. These levels drop rapidly as the distance from the wells increases. Since the TSF-05 well was constructed in 1953 and operated as an injection well for 20 years, the TCE may have traveled as far as 2.4 km (1.5 mi) south to southeast with the groundwater flow. The other contaminants of concern (COCs) have not been found at levels above drinking water standards at distances more than 0.4 km (0.25 mi) from the well.

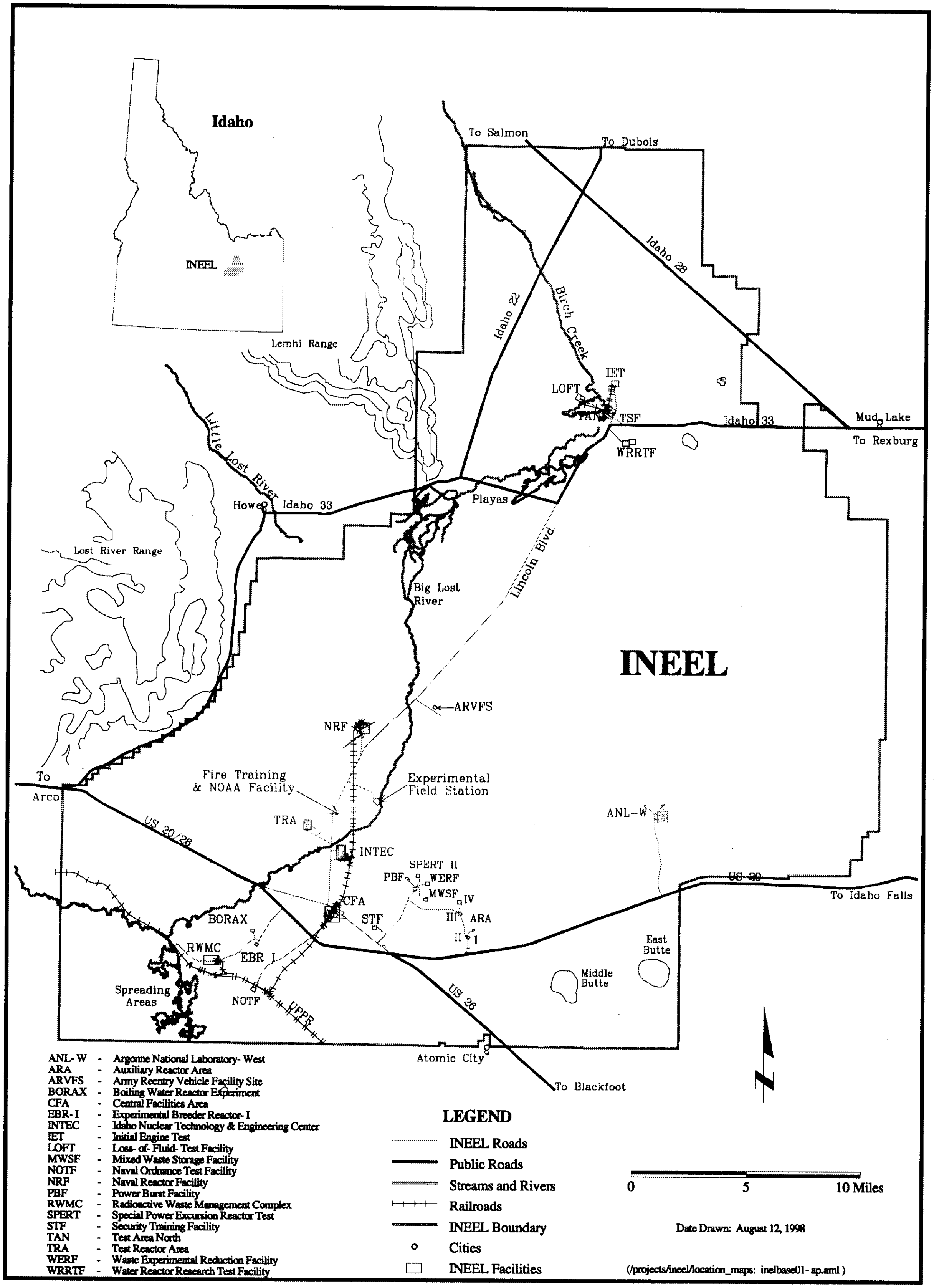


**Figure 1-1.** Map of the INEEL Site showing location of major facilities.

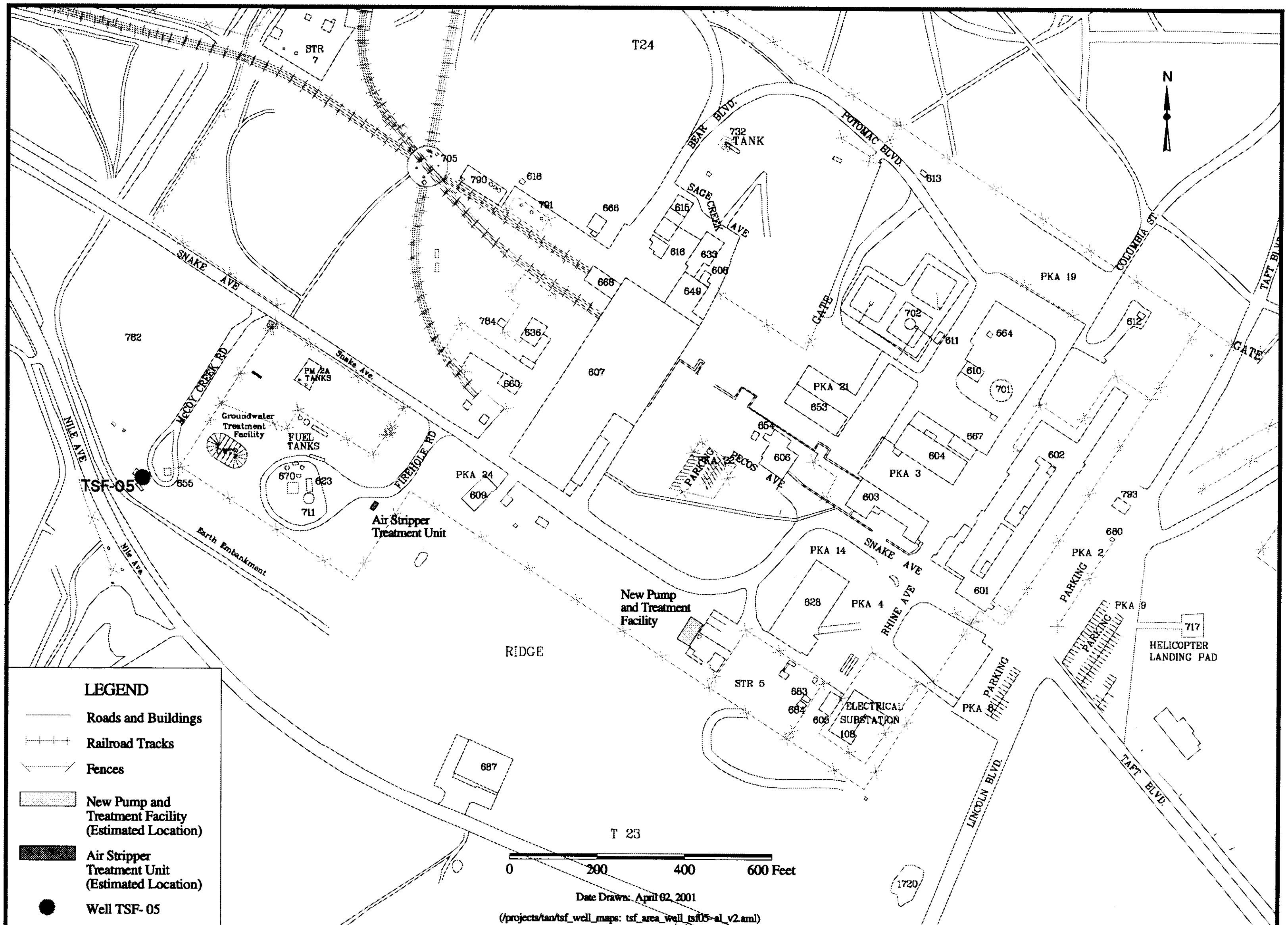


**Figure 1-2**. TAN Technical Support Facility.

**Table 1-1.** Validated results showing the range of contaminant concentrations.[a, b]

| Contaminant | TSF-05 Injection Well | TAN-25 Monitoring Well | TAN-26 Monitoring Well | MCL[c] |
|---|---|---|---|---|
| **Organic Compounds (μg/L)** | | | | |
| PCE | 14–440 | 4–<1,000[d] | 14–26 | 5 |
| TCE | 4,400–164,000 | 3,400–17,000 | 480–2,200 | 5 |
| Cis-1,2 DCE | 2,800–15,000 | 890–3,500 | 165–1,700 | 70 |
| Trans-1,2 DCE | 1,300–13,000 | 450–2,000 | 16–63 | 100 |
| **Radionuclides[e] (pCi/L)[e]** | | | | |
| Sr-90 | 530–2,310 | 370–440 | 0.8–4 | 8 |
| Tritium (H-3) | 11,400–29,600 | 7,500–14,200 | 3,500–4,800 | 20,000 |
| U-234 | 1.0 E–02-17 | 7–10 | 1.7–3.4 | 30 |
| U-235 | 6.43E-04–1.7E-01 | — | — | 30 |
| U-238 | 7.08E-04–4.4E-01 | 0.64 | 1.4 | 30 |
| Am-241/ Pu-238 | 8.83E-02–2.19E-01 | 3 E-02 < 0.2 | 7 E-02 < 0.2 | 15[f] |
| Pu-239/ Pu-240 | 6.88E-02–1.8E-01 | 6 E-02 < 0.2 | 0.1 < 0.2 | 15[f] |
| Cs-137 | 1,600–92,600 | 90–570 | <30 | 119 |
| Co-60 | 8.72–7,430 | <20 | <20 | 100[g] |

a. Values are from the OU 1-07B remedial investigation, OU 1-07A final progress report for Batches 1 through 31, Phase 0 characterization, and OU 1-07B surge and stress, and groundwater monitoring through October 1996.

b. Key: — indicates not sampled; <(number) indicates less than the detection limit.

c. MCL = maximum contaminant level per Federal Drinking Water Standards. The maximum contaminant level (MCL) for U-234 is for the U-234, -235, and -238 series and is from a proposed rate dated July 18, 1991. The MCL for Cs-137 is derived from a corresponding 4 mrem/yr effective dose equivalent to the public, assuming lifetime intake of 2 L/day of water.

d. Dilution factors of 1,000 and 200 were used during the March and June 1994 sample analyses, respectively. These dilution factors raised the detection limit for PCE to 1,000 mg/L for the March 1994 analysis and 200 mg/L for the June 1994 analysis.

e. Uncertainties are not provided in the table, but are reported with the original data. Radionuclides are associated with groundwater and sludge samples from the hot spot and are not associated with other OU 1-07B activities.

f. The MCL is for gross alpha particle activity (including radium-226, but excluding radon and uranium).

g. EPA (1985) Primary Drinking Water Standard.

## 1.3 Scope of Work

The objective of the OU 1-07B remedial action (RA) is to remove and/or contain the hot spot secondary source and to remediate the downgradient contaminated groundwater. Remedial activities are intended to restore the contaminated groundwater by 2095. Restoration of the groundwater will be complete when the concentration of contaminants found in the groundwater is reduced to below maximum contaminant levels and 1 in 10,000 risk-based levels or, for noncarcinogens, until the cumulative hazard index is less than 1. Restoration of the contaminated groundwater is to be completed by 2095.

The remedial action also includes treatability studies on alternate treatment technologies. The COCs listed in the Record of Decision (ROD) are TCE, cis- and trans-1,2-DCE, PCE, Sr-90, tritium (H-3), Cs-137, and U-234. TCE is being used as an indicator for defining the dissolved groundwater plume because groundwater monitoring indicates that it has the widest distribution of concentrations above MCLs.

The three phases of project implementation are:

- Phase A—Transition from OU 1-07A interim action activities to the OU 1-07B final RA

- Phase B—Contain and/or remove the hot spot (the area around TSF-05) and complete technology evaluation treatability studies

- Phase C—Capture and treat a sufficient portion of the dissolved phase plume beyond the hot spot to provide for aquifer cleanup by 2095.

Figure 1-3 identifies the OU 1-07B area of contamination and associated OU 1-07B planned facilities.

### 1.3.1 Hot Spot Containment and/or Removal.

In Fiscal Year 1998, Phase A was completed and Phase B initiated. The Groundwater Treatment Facility (GWTF) and Air Stripper Treatment Unit (ASTU) have both been used to provide hot spot containment or removal during Phase B. The GWTF is no longer used for containment; depending on the operating strategy, either the ASTU or New Pump and Treat Facility (NPTF) is used for hot spot containment. A description of the GWTF is included because it is used periodically to store and treat purge water from hot spot wells before the water is reinjected into the aquifer.

The GWTF process system consists of several treatment subsystems and was designed as a continuous treatment system. The GWTF was piped to allow water extraction from three wells: (1) TSF-05, (2) TAN-25, and (3) TAN-26. The treated water was then pumped into the reinjection well (TAN-31). Monitoring wells TAN-25 and -26 were constructed 8 and 15 m (25 and 50 ft), respectively, downgradient from the TSF-05 injection well to monitor changes in contaminant concentrations over time, to evaluate aquifer hydraulic characteristics in the vicinity of TSF-05, and to provide additional locations to extract contaminated groundwater, if required. Other wells in the vicinity of TSF-05 also provide monitoring information and may be used as extraction wells. Figure 1-2 depicts the GWTF, ASTU, and NPTF and their locations relative to TAN Operations facilities.

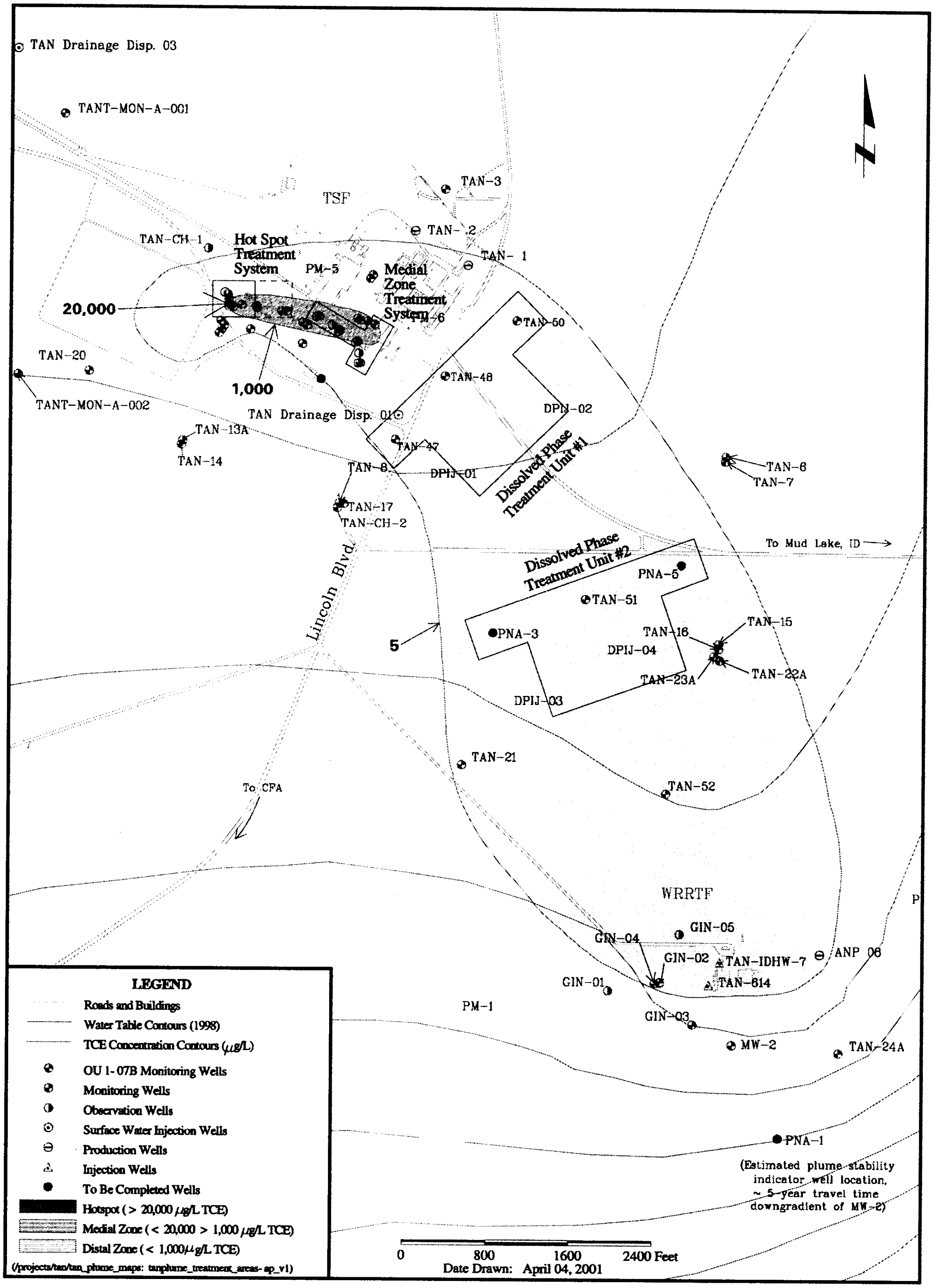


**Figure 1-3.** Concentrations of organic contaminants found in the contaminated groundwater and planned treatment facility locations.

### 1.3.2 Treatability Studies.

Phase B also included bench- and pilot-scale treatability studies to assess promising remediation technologies and a literature search for emerging innovative technologies. Technologies that were evaluated include:

- *In Situ Bioremediation*—ISB at TAN involves a complex interaction between hydrology, the native microorganisms, and the delivery of substrates or nutrients to the subsurface. The goal of the ISB process is to enhance native bacterial degradation of TCE. The technology evaluation of ISB is focusing on (1) characterization of the activity of native bacteria at the site, (2) optimization of conditions to encourage TCE degradation, and (3) chemical and hydrologic characterization of the subsurface environment in the plume. The ISB system is located in a trailer west of the GWTF. The system consists of a drum pump, process piping, and an electron donor storage area. The drum pump is used to pump sodium lactate or other suitable electron donor such as whey or molasses from storage containers to the process piping where it is mixed with potable water. The mixture is injected into TSF-05 or other wells in the vicinity of the hot spot using the ISB process piping. Field study activities utilizing the aforementioned facilities and equipment are ongoing. The ISB field evaluation work plan (FEWP) (DOE-ID 1998a) or the Pre-Design Operations Work Plan (latest issue) identifies specific work activities. Results of these activities indicate that ISB effectively degrades the chemical contaminants in the groundwater, and ISB is recommended as the final cleanup technology for the hotspot. The decision on the final technology selected for groundwater cleanup will be documented in a ROD amendment.

- *In Situ Chemical Oxidation (ISCO)*—A second alternative technology that was studied involved injection of an oxidant into the aquifer via TSF-05, allowing it to react under ambient flow conditions, and then extracting it by pumping TSF-05. This approach would have been similar to a large single-well push-pull test (SWPPT). Because ISB was shown to be effective, the ISCO field demonstration was not completed. If ISB is later shown to be ineffective, the ISCO demonstration work will be restarted.

- *Monitored Natural Attenuation(MNA)*—The primary objective of MNA is to determine whether the combined effects of multiple natural processes will degrade or reduce contaminant groundwater concentrations below regulatory standards within an established remedial timeframe. Groundwater will be monitored during MNA through sampling and analyses, natural gradient tracer tests. Monitoring and demonstration have shown that MNA is successful. MNA has been recommended for cleaning up the distal zone of the plume.

### 1.3.3 Phase C—Groundwater Restoration Activities

Phase C will implement ISB at the hot spot, pump and treat technology at the medial zone, and MNA at the distal zone. Through five-year reviews during Phase C, the effectiveness of the technologies will be evaluated and changes made if necessary to ensure that the plume is remediated by 2095. Phase C activities are planned to continue through the year 2095.

Drilling and installation of additional wells to depths ranging from approximately 91 to 122 m (300 to 400 ft) will be done to support groundwater restoration activities. Downhole probing, geophysical logging, well maintenance, and pump removal or installation at any of the TAN wells will continue throughout Phase B and Phase C activities. Well drilling, logging, and probing will be an ongoing process. As information is gathered, project management will make decisions on the continuation of this work scope. Hazards associated with these activities are identified in Section 8 of this HASP. Additional and specific hazards will be addressed in appropriate work plans.

The following will be completed for the above-identified tasks as appropriate:

- Preliminary sampling and characterization
- Preliminary radiological surveys and hazardous material sampling
- National Environmental Policy Act (NEPA) documentation
- Storm Water Pollution Prevention Plan
- State Historic Preservation Office documentation
- Work control documentation/integrated planning sheets
- Notification and planning documentation
- Waste characterization reports and L-0435 forms for waste disposal
- Fire hazards analyses for associated facilities.

***1.3.3.1 Hot Spot—In Situ Bioremediation.*** Because of its demonstrated effectiveness, ISB is the recommended treatment for hot spot remediation. ISB treatment began in Phase B and will continue during Phase C.

***ISB System Description***—A portable structure houses bioremediation equipment. A drum pump moves an electron donor such as sodium lactate, whey, or molasses from storage containers to process piping, where it is mixed with potable water. The mixture is then injected into well TSF-05 or other injection wells in the vicinity of the hot spot. The electron donor mixture enhances microbial degradation of groundwater contaminants. ISB effectiveness will be monitored and assessed during Phase C to ensure that it continues to be effective. The system pumps electron donor from storage containers and mixes it with potable water before it is injected into TSF-05 or other injection wells in the vicinity of the hot spot. A 1-½-in. pipeline carries potable water into the ISB system, and transports the electron donor to the injection well. Electron donor is purchased from commercial vendors

***1.3.3.2 Medial Zone—New Pump and Treat Facility.*** Phase C medial zone remediation will include design, construction, and operation of a new treatment system with extraction wells located approximately 305 m (1,000 ft) downgradient from the TSF-05 injection well. The purpose of the New Pump and Treat Facility (NPTF) will be to capture and treat groundwater between the hot spot and the NPTF extraction wells. The new facility will treat groundwater at a flowrate between 379 and 946 L/min (100 and 250 gpm). Based on historical data collected at the extraction location, influent radionuclide concentrations are anticipated to be below MCLs; thus, the system will not require radionuclide removal treatment. However, radionuclides will be monitored during facility operations to ensure that they remain below MCLs.

***NPTF System Description*** —The NPTF consists of the following equipment: (1) pumps to extract water from wells TAN-38, -39 and -40; (2) two 473 L/min (125 gpm) parallel air stripper treatment trains; (3) a building with concrete floor and sump, located near TAN-38; and (4) piping needed to discharge the effluent water into the injection well. The system will pump water from a combination of the wells at a nominal flow rate of 568 L/min (150 gpm). This water will be treated to remove VOCs to below MCLs and less that $10^{-5}$ cumulative risk. The extracted groundwater will contain F001 listed waste and all components of the extraction system meet secondary containment requirements specified by the Resource Conservation and Recovery Act (RCRA). After the air stripping process, the water will (through approval of the Idaho Department of Environmental Quality [DEQ]) be considered to no longer contain the listed hazardous waste and will be discharged to the injection well. The concentrations of VOCs present in groundwater treated through the NPTF are in Table 1-2.

***1.3.3.3 Distal Zone—Monitored Natural Attenuation.*** Monitored Natural Attenuation (MNA) is the recommended treatment for the Distal Zone. The active portion of this treatment process is a combination of computer modeling and groundwater monitoring. Computer modeling has been used to predict that the concentration of volatile organic compounds (VOCs) will decrease to below regulatory standards before 2095. The computer models are based on the rate of VOC breakdown measured during previous groundwater monitoring activities. VOCs are broken down in the aquifer by multiple natural processes including rain, snowmelt, microbial activity, subsurface water flow, chemical reactions). These processes naturally degrade and reduce contaminant concentrations in the groundwater. During Phase C, groundwater samples will be collected to verify that COCs will be reduced to below regulatory limits before 2095.

***MNA System Description***—No permanent facilities are required for implementation of MNA. Groundwater sampling and analysis will be conducted to track the progress of MNA.

***1.3.3.4 Groundwater Monitoring.*** During Phase C, groundwater will be monitored in accordance with a groundwater monitoring plan developed for Phase C. The plan will consider and support the remedial action objectives (RAOs) identified in the ROD. Monitoring data will be used to track the >5 μg/L TCE plume, document COC concentration changes over time, provide information on the attenuation rate of the plume, and evaluate attainment of RAOs. The scope and requirements for groundwater monitoring are in the Phase C operations and maintenance plan (DOE-ID 1999) and the Phase C groundwater monitoring plan (INEEL 1999).

***1.3.3.5 Institutional Controls.*** Institutional controls (engineering and administrative controls) will be applied to protect current and future users from health risks associated with groundwater contamination by preventing ingestion of groundwater having concentrations of COCs exceeding MCLs or $10^{-5}$ cumulative risk. The scope and requirements for institutional controls are addressed in the Phase C operations and maintenance plan (DOE-ID 1999).

**Table 1-2.** NPTF influent design concentrations.

| Contaminant | Concentration (μg/L) | MCL (μg/L) |
|---|---|---|
| TCE | 1,100 | 5 |
| PCE | 70 | 5 |
| Cis-DCE | 120 | 70 |
| Trans-DCE | 50 | 100 |

# 2. KEY PROJECT PERSONNEL RESPONSIBILITIES

The organizational structure for this project reflects the required resources and expertise to perform the work while minimizing risks to worker health and safety, the environment, and the public. The key roles at the project and lines of responsibility and communication are shown on the organizational chart for the project (Figure 2-1). The following sections outline the responsibilities of key project personnel.

## 2.1 Nonfield Support Staff

### 2.1.1 WAG 1 Project Manager

The WAG 1 Project Manager (PM) is responsible for the following:

- Provides day-to-day direction to the project team
- Ensures overall project performance
- Establishes and manages the project
- Maintains scope, schedule, and budget
- Forms and maintains project team
- Ensures that project milestones are meet and goals are completed
- Provides trend and change management
- Provides safety leadership
- Provides long-term view, and establishes strategies to resolve long lead issues
- Identifies training requirements and needs within his/her functional area that may be necessary for assigned personnel to work safely and effectively
- Ensures that personnel are competent to carry out their assigned tasks and that no one is assigned a task for which his/her is not qualified
- Performs self-assessments for compliance with company procedures
- Supports the project engineer's (PEs) roles and responsibilities.

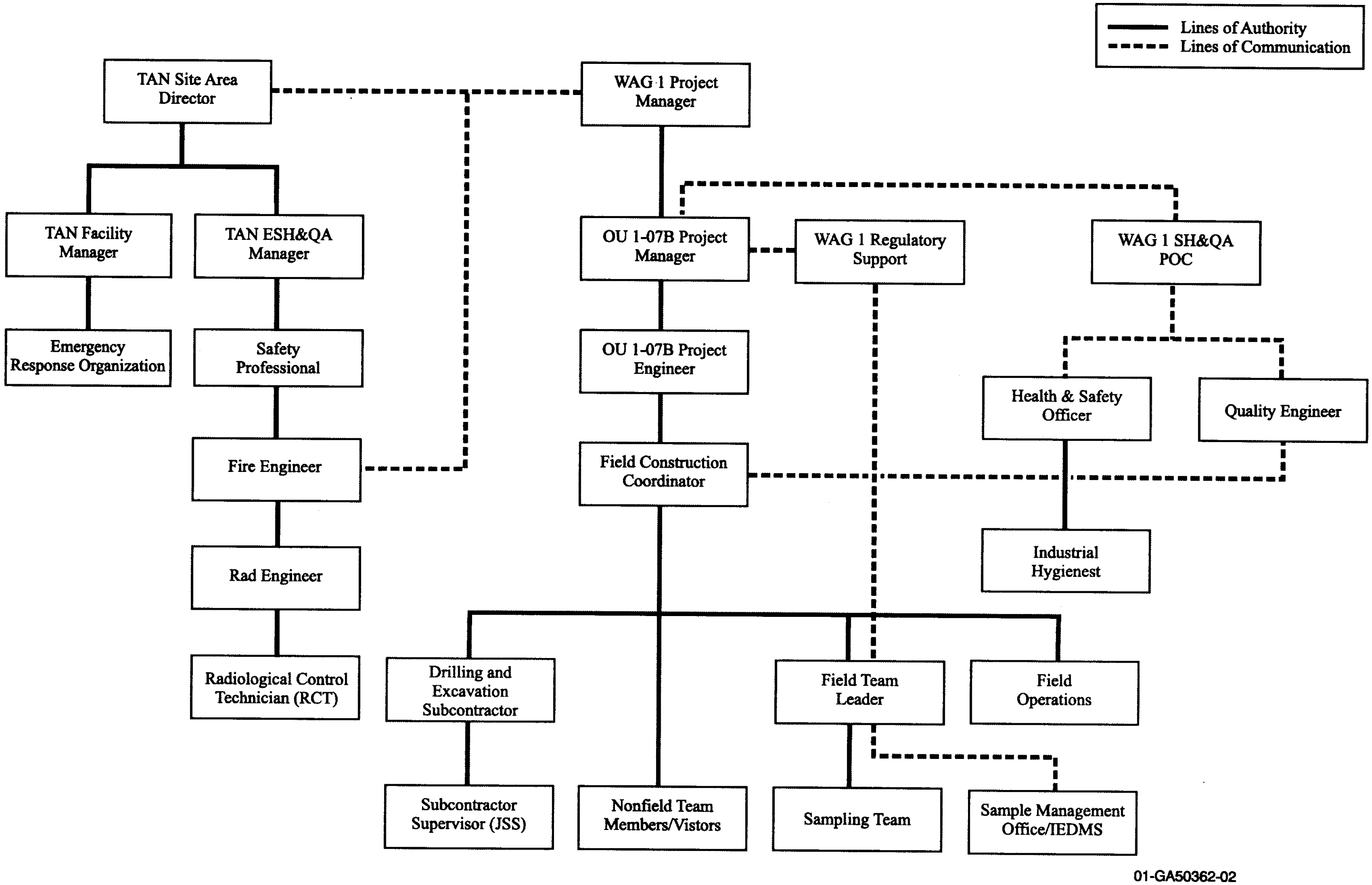


**Figure 2-1.** Field organization chart for the WAG 1 OU 1-07B projects.

### 2.1.2 WAG 1 OU 1-07B Project Manager

The WAG 1 OU 1-07B PM is responsible for the following:

- Coordinating and interfacing with the support groups within the program support organization on issues relating to QA, environment, safety and health (ES&H), and NEPA support for the project
- Provides day-to-day direction to the project team
- Ensures project performance meets expectations, including scope, schedule, and budget requirements
- Establishes and manages the project
- Forms and maintains the project team in conjunction with the PM and PE
- Ensures milestones and goals are met
- Evaluates trends and prepares change controls as necessary to maintain project within established thresholds
- Functions as an outspoken advocate for safety
- Maintains focus on the "big picture" and long-term actions
- Performs self-assessments
- Ensures personnel are qualified to perform their jobs and training is up-to-date and in compliance with individual training plans
- Ensures frequent and timely communication between the PM and team members.

### 2.1.3 Project Engineer

The OU 1-07B Project Engineer is responsible for the following:

- Directs, leads, and manages the project engineering and design activities (including any research and development activities associated with the project)
- Provides day-to-day technical direction to project team
- Executes the project technical work (e.g., establishing project design criteria, preparation of work plans, material requisitions, scopes of work, specifications, drawings)
- Establishes the projects technical staffing
- Develops the project technical execution strategy
- Ensures that technical objectives are achieved

- Ensures that work products meet the appropriate technical quality requirements

- Coordinates ER designs with the engineering manager for the site area director (SAD), as needed

- Functions as the systems, structures, or component (SSC) primary owner and assigns an SSC engineer, for ER-generated SSCs

- Schedules and coordinates design and operational reviews

- Establishes data quality objectives (DQOs), and ensures that project DQOs are met

- Ensures that the configuration management requirements of ER facilities and systems are met

- Coordinates with the PM to ensure milestones are met and costs are evaluated

- Ensures that field documents and planning and decision documents meet the appropriate technical quality requirements.

### 2.1.4 WAG 1 SH&QA Point of Contact

The WAG 1 SH&QA POC or designee is responsible for the following:

- Performs safety assessment and planning needed to establish the project SH&QA requirements applicable to the project

- Prepares health and safety plans and health and safety portions of work control documents, prefire plans, fire hazard analyses, preliminary and final safety assessments, technical safety requirements, and other required safety documentation

- Performs SH&QA tasks within established cost and schedule

- Ensures that SH&QA requirements are incorporated into documents that direct field activities and ensures construction quality of the field activities

- Establishes interface relationship with facility SH&QA professionals and apprises facility professionals of project SH&QA status on a regular basis

- Prepares or coordinates the preparation of health and safety related documents or portions of documents as specified in the ER Programs Project Management Plan (PLN-694)

- Coordinates obtaining new resources as necessary.

***2.1.4.1 Environmental Regulatory Support.*** The WAG 1 Environmental Regulatory POC or designee is responsible for the following:

- Prepares environmental position papers and other environmental procedures

- Performs regulatory compliance surveillance of field activities

- Ensures that regulatory tasks are completed within cost and schedule
- Ensures that regulatory requirements are incorporated into project documents
- Supports the PM in ensuring that regulatory tasks are completed within cost and schedule requirements
- Supports project teams to resolve concerns and issues.

***2.1.4.2 Integrated Environmental Data Management System Technical Leader.*** The Integrated Environmental Data Management System (IEDMS) technical leader will interface with the PM during the preparation of the IEDMS database required by Management Control Procedure (MCP)-227, "Sampling and Analysis Process for CERCLA and D&D&D Activities." Additionally, the IEDMS technical leader will:

- Provide guidance on the appropriate number of field quality control samples required by the QAPjP (DOE-ID 2000a) and the appropriate bottle size and preservation for sample collection
- Ensure that the sample identification numbers used by the project are unique from all others ever assigned by IEDMS.

Preparing the plan database and completing the sample management office (SMO) request for services form initiates the SMO sample and sample waste tracking activities.

***2.1.4.3 Environmental Restoration Program Coordination (ERPC) Manager.*** The ERPC manager is responsible for:

- Managing environmental compliance resources to ensure that environmental compliance requirements are planned for and implemented in the day-to-day ER program operations at the INEEL
- Directing all environmental compliance activities (provides technical and administrative direction to subordinate staff and coordinates with related functional entities).

The ERPC manager reports directly to the ER director and, under the direction of the ER director, represents the ER directorate in all environmental compliance matters.

***2.1.4.4 Quality Engineer.*** The quality assurance (QA) engineer provides guidance on task-site quality issues, when requested, and is responsible for:

- Observing task-site activities and verifying that task-site operations comply with quality requirements pertaining to these activities
- Identifying activities that do not or potentially will not comply with quality requirements and suggesting corrective actions.

***2.1.4.5 Sample Management Office.*** The INEEL SMO will obtain laboratory services, as required, and ensure that the generated data meet the needs of the project by validating all analytical laboratory data according to resident protocol and ensuring that data are reported to the project personnel in a timely fashion, as required by the Federal Facility Agreement and Consent Order (FFA/CO).

The assigned SMO representative is responsible for:

- Interfacing with the PM and/or designee during the preparation of the sample and analysis plan (SAP) database, as required by MCP-227, "Sampling and Analysis Process for CERCLA and D&D&D Activities")

- Providing guidance on the appropriate number of field quality control samples required by the QAPjP (INEEL 2000a)

- Providing guidance on the appropriate bottle size and preservation for sample collection

- Ensuring that the sample identification numbers used by the project are unique from all others ever assigned by the IEDMS. The SMO representative supports the IEDMS technical leader in completing these last two responsibilities.

The preparation of the plan database, along with the completion of the SMO services request form (INEEL Form 435.26), initiates the sample and sample waste tracking activities performed by the SMO.

The SMO-contracted laboratory will have overall responsibility for laboratory technical quality, laboratory cost control, laboratory personnel management, and adherence to agreed-upon laboratory schedules.

## 2.2 Project Personnel

All project personnel will comply with the requirements of this HASP. At the start of each shift, the field team leader (FTL), field construction coordinator (FCC), or designee will conduct a plan of the day (POD) briefing to discuss all daily tasks, associated hazards, hazard mitigation (e.g., engineering and administrative controls, required personal protective equipment [PPE], work control documents), and emergency conditions and actions. During POD briefings, the project HSO, the IH, and the radiological control technician (RCT) will provide input, as deemed appropriate, to clarify health and safety requirements for the tasks. All personnel will be encouraged to ask questions regarding site tasks and to provide suggestions for performing required tasks more safely and effectively, based on lessons learned from the previous day's activities.

Once at the site, all personnel are responsible for identifying any potentially unsafe situations or conditions to the FTL or HSO for corrective action. If an unsafe condition is perceived to pose an imminent danger, all personnel are authorized to stop work immediately and must notify the FTL or HSO of the unsafe condition.

### 2.2.1 WAG 1 OU 1-07B Field Construction Coordinator

The WAG 1 OU 1-07B FCC is the individual with ultimate responsibility for the safe and successful completion of assigned project tasks. The OU 1-07B FCC also acts a s the Operations Supervisor (OS) for facility operations. Specific duties of the FCC include:

- Ensures that field activities are performed in accordance with the design and environmental regulatory SH&QA standards

- Develops proper procedures and ensures appropriate training is completed prior to the start of any field operations (i.e., conduct of operations)

- Ensures that all field activities are conducted in compliance with Integrated Safety Management System requirements and associated work orders or procedures (field activities may include maintenance, construction, operations, field sampling, unexploded ordinance work, (D&D&D&D), and other activities within the ER project)

- Coordinates all activities with the appropriate facilities maintenance and operations managers

- Obtains and coordinates all resources needed to implement the ER field work including equipment, labor, and administrative/technical permits and approvals

- Participates in constructability reviews and ensures that project POD meetings, tailgate safety meetings, and readiness and operational readiness reviews are performed as required and appropriate

- Provides input for monthly project reviews in the form of field progress photos, field operations metrics, field safety statistics and preventive measures, field labor staffing projections, and issues associated with any aspects of field operations

- Monitors and performs field activities in accordance with established cost and schedule.

### 2.2.2 OU 1-07B Field Team Leader

The Field Team Leader (FTL) has ultimate responsibility for the safe and successful completion of field sampling activities, and all health and safety issues at the sampling work site must be brought to the attention of the FTL. In addition to managing field operations, executing the FSP, enforcing site control, documenting worksite activities, and conducting daily safety briefings, FTL responsibilities include but are not limited to:

- Complying with the technical and operational requirements of the sampling activities

- Conducting field analyses and decontamination activities

- Packaging and shipping samples

- Determining, in conjunction with the site IH and RCT, the level of PPE necessary for the task

- Ensuring compliance with field documentation, sampling methods, and chain-of-custody requirements

- Ensuring the safety of personnel conducting the activities associated with the FSP.

The FTL will serve as the sampling team leader. FTL responsibilities may be transferred to a designated representative who satisfies all FTL training requirements.

### 2.2.3 Subcontractor Supervisor

The construction subcontractor also know as the Job Site Supervisor (JSS) will perform various drilling tasks during this project to support final remediation. The subcontractor will designate a supervisor who will serve as the single POC for all subcontractor safety issues at the site. Each subcontractor supervisor will be responsible for:

- Supervising subcontractor personnel assigned to work at the site
- Reporting to the FCC on all field interface issues
- Working with the FCC to accomplish day-to-day drilling operations at the site, and identifying and obtaining additional resources needed at the site
- Interacting with the FCC, FTL, HSO, the IH, the safety professional (SP), and the RCT on matters regarding health and safety
- Reporting any health and safety issues to the HSO, FCC, or FTL.

Subcontractor personnel may stop work at the site if an unsafe condition exists or arises. The subcontractor foreman will also be asked to provide hazard and mitigation information regarding the nature of the work tasks during the POD briefing.

### 2.2.4 Sampling Team

The sampling team will consist of a minimum of two people who will perform the onsite tasks necessary to collect the samples. The buddy system will be implemented for all sampling tasks. The members of the sampling team will be led by an FTL. The IH and RCT will support the sampling team as warranted, based on site-specific hazards and task evolutions.

### 2.2.5 Health and Safety Officer

The HSO is the person assigned to the project who serves as the primary contact for health and safety issues. The HSO will notify and advise the WAG 1 SH&QA POC of all injuries, occurrences, incidents, and near misses that are a result of project activity. The HSO advises the FTL and FCC on all aspects of health and safety, and is authorized to stop work at the project if any operation threatens worker or public health and/or safety. The HSO may be assigned other responsibilities, as stated in other sections of this HASP, as long as they do not interfere with the primary responsibilities. The HSO is authorized to verify compliance to the HASP, conduct inspections, establish and monitor corrective actions, monitor decontamination procedures, and require corrections, as appropriate. The HSO is supported by SH&QA professionals at the project (i.e., safety engineer, IH, RCT, and radiological engineer [RE]).

The assigned HSO or alternate HSO must be qualified to recognize and evaluate hazards and will be given the authority to take or direct actions to ensure that workers are protected. The HSO may also be the IH, safety engineer (SE), or, in some cases, the FTL or FCC (depending on the hazards, complexity, and size of the activity involved, and required concurrence from the ER WAG 1 SH&QA POC) at the project. However, the HSO role must not conflict with or add a significant volume of work to other project responsibilities. The HSO will be kept apprised of all project safety, health, and radiological activity.

If it is necessary for the HSO to leave the project, an alternate individual will be appointed by the HSO to fulfill this role and project personnel will be notified.

The HSO will ensure the appropriate SH&QA personnel participate in the development and verification of the hazards screening profile checklist (STD-101) or hazards screening checklist in accordance with MCP-3562, "Hazard Identification, Analysis, and Control of Operational Activities" and PRD-1007, "Work Coordination and Hazard Control."

***2.2.5.1 Industrial Hygienist.*** The assigned IH is the primary source of information regarding nonradiological hazardous and toxic agents at the project. The IH will inform the HSO of all IH activity and the results of monitoring and sampling. The IH assesses the potential for worker exposures to hazardous agents according to the MCPs, and accepted industry IH practices and protocol. By participating in exposure assessments, the IH will assess and recommend appropriate hazard controls for the protection of project personnel, operate and maintain airborne sampling and monitoring equipment, review for effectiveness, and assess the use of PPE required in this HASP, recommending changes as appropriate.

The IH will review all Form 340.02, employee job function evaluations to validate that management has completed the form. After validation, the form is electronically sent to the OMP for scheduling a medical evaluation, as needed.

Following an evacuation, the IH, in conjunction with other project and emergency response team members, will help the FTL determine if reentry is safe as described in Section 11. Personnel showing health effects (signs and symptoms) resulting from possible exposure to hazardous agents will be referred to an OMP physician by the IH, their supervisor, or the HSO. During emergencies involving hazardous materials, airborne sampling and monitoring results will be coordinated with members of the Emergency Response Organization (ERO). The IH may have other duties at the project, as specified in other sections of this HASP or in INEEL PRDs and/or MCPs.

***2.2.5.2 Fire Protection Engineer.*** The assigned fire protection engineer reviews the work packages, conducts preoperational and operational fire hazard assessments, and provides technical guidance to project personnel regarding all fire protection issues.

### 2.2.6 Nonfield Team Members/Visitors

All persons at the site who are not part of the field team (e.g., surveyor, equipment operator, or other craft personnel not assigned to the project) are considered nonfield team members or visitors for the purposes of this project. A person in or beyond the designated support zone (SZ) is considered to be onsite. Nonfield team members are considered occasional site workers per 29 CFR 1910.120/1926.65 and must receive any additional site-specific site training identified in Section 4 of the HASP prior to entering beyond the SZ of the project site.

Training must be documented, and a copy of the documentation must be sent to the training coordinator. A site supervisor (e.g., HSO or FTL) will supervise all nonfield team personnel who have not completed three days of supervised field experience, in accordance with the HAZWOPER standard.

Visitors may not be allowed beyond the project SZ. The determination of any visitor's "need" for access beyond the SZ at the project site will be made by the FTL and HSO in consultation with TAN Radiation Control (RADCON) personnel (as appropriate) and the visitor must meet the training requirements specified in Table 4-1, support personnel. Anyone who does not have official business or a specific task at the project is a casual visitor.

## 2.3 TAN Support Staff

### 2.3.1 TAN Site Area Director

The TAN SAD reports to the director of Site Operations and interfaces with the TAN facility manager and therefore must be informed of all area activities. The TAN SAD is responsible for:

- Overseeing all work processes and work packages in the TAN area
- Establishing and executing a monthly, weekly, and daily operating plan for the TAN area
- Executing the environment, safety, health, and quality (ESH&Q) program for the TAN area
- Executing the Integrated Safety Management System (ISMS) for the TAN area
- Executing enhanced work planning for the TAN area
- Executing the Voluntary Protection Program (VPP) in the TAN area
- Ensuring environmental compliance within the TAN area
- Executing that portion of the voluntary compliance order that pertains to the TAN area
- Correcting the root causes described in accident investigations in the TAN area

### 2.3.2 Facility Manager/Landlord

The TAN facility manager is responsible for maintaining his or her assigned facility and must be cognizant of work being conducted in the facility. The TAN facility manager is responsible for the safety of personnel and the safe completion of all project activities conducted within his or her area. Therefore, the facility manager and TAN shift supervisor (SS) will be kept informed of all area activities via the POD. The SS and FCC will agree on a schedule for reporting work progress and plans for work. The SS may serve as advisor to project personnel with regard to the SS area of operation.

### 2.3.3 Radiological Engineer

The RE is the primary source of information and guidance relative to evaluation and control of radioactive hazards at the project. The RE will provide engineering design criteria, review containment structures, and make recommendations to minimize health and safety risks to project personnel. The RE will estimate radiation exposure and provide as low as reasonably achievable (ALARA) evaluations, identify the type(s) of radiological monitoring equipment necessary for the work, advise the FTL and RCT of changes in monitoring or PPE, and advise personnel on project evacuation and reentry. The RE may have other duties as specified in other sections of this HASP or in the INEEL *Radiation Protection Manual.*

### 2.3.4 Radiological Control Technician

The assigned RCT is the primary source of information and guidance on radiological hazards and will be available during all operations. RCT responsibilities include radiological surveying of the project, equipment, and samples, providing guidance for radioactive decontamination of equipment and personnel, and accompanying the affected personnel to the nearest INEEL medical facility for evaluation if significant radionuclide contamination occurs. The RCT must notify the FTL and HSO of any radiological occurrence that must be reported as directed by the INEEL *Radiation Protection Manual.* The RCT may have other duties at the project as specified in other sections of this HASP or in INEEL MCPs or PRDs.